

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 13438 (1992): Allethrin - mosquito Coils [FAD 1:
Pesticides and Pesticides Residue Analysis]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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REAFFIRMED

IS 13438 : 1992

(Reaffirmed - 2012)

भारतीय मानक

एलेथ्रिन — मास्कीटो कायलस — विशिष्ट

Indian Standard

ALLETHRIN — MOSQUITO COILS —
SPECIFICATION

UDC 615.285-428.3 : 648.7

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 1992

Price Group 2

AMENDMENT NO. 1 APRIL 1993
TO
IS 13438 : 1992 ALLETHRIN — MOSQUITO COILS —
SPECIFICATION

(*Second cover, Foreword*) — Substitute the following for the existing matter:

“FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Mosquito coils when ignited emit smoke containing allethrin.

Allethrin, technical, a synthetic pyrethroid is used in the manufacture of the coils.

The mosquito coils are generally manufactured to contain allethrin 0.5 percent (*m/m*) [*d*-isomer content 95 percent minimum (*m/m*)].

The Registration Committee constituted under the *Insecticides Act*, 1968 by the Government of India has granted registration to mosquito coils containing allethrin as an active ingredient, after examining the toxicity data submitted by the applicant and satisfying itself that the product is safe to human beings if used as prescribed.

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restriction imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded value should be the same as that of the specified value in this standard.”

(FAD 1)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 SEPTEMBER 1994
TO
IS 13438 : 1992 ALLETHRIN — MOSQUITO COILS —
SPECIFICATION

(*Page 2, clause 6*) — Substitute the following for the existing:

‘When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 : 1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause 3.7 of the standard.’

(FAD 1)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 DECEMBER 1999
TO
IS 13438 : 1992 ALLETHRIN — MOSQUITO COILS —
SPECIFICATION

Wherever the words 'Allethrin Technical' appear, referring to this standard, they should be read as '*d*-Allethrin Technical'.

(FAD 1)

Reprography Unit, BIS, New Delhi, India

Pesticides Sectional Committee, FAD 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Mosquito coils when ignited emit smoke containing allethrin.

Allethrin, technical, a synthetic pyrethroid is used in the manufacture of the coils.

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For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ALLETHRIN — MOSQUITO COILS — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for mosquito coils containing allethrin.

2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	Title
1070 : 1977	Water for general laboratory use (<i>second revision</i>)
8190 (Part 3) : 1979	Requirement for packing of pesticides : Part 3 Household pesticides
10627 : 1983	Method for sampling of pesticidal formulations
13146 : 1991	Allethrin, technical

3 REQUIREMENTS

3.1 Description

The material shall be in the form of a pair of separable coils. The external surface shall be uniformly green in colour.

3.2 Length

The minimum length of each coil shall be 70 cm when measured through the middle line of the entire coil.

3.3 Mass

The minimum mass per pair of coils shall be 24 g.

3.4 Burning Quality

3.4.1 The tip of a coil shall ignite easily when lighted with a matchstick in a draught-free room.

3.4.2 The rate of burning shall be 5.5 minutes per centimetre length of the coil when burnt in a draught-free room according to the method described in Annex A.

3.4.3 The coil shall burn continuously for a minimum period of 6 hours when burnt in a draught-free room.

3.5 Strength

When a coil is tested according to the method described in Annex B, it shall be able to withstand a load of minimum 80 g.

3.6 Separation of Joint Coils

The twin mosquito coils shall easily separate when 5 twin coils are separated by the method described in Annex C. The number of single coils breaking on separation shall not be more than one in a sample consisting of 5 twin coils.

3.7 Chemical

When tested by the method described in Annex D, the observed allethrin content, percent (*m/m*), of any of the samples shall not differ by more than ± 20 percent of the declared nominal value.

4 PACKING

4.1 Mosquito coils shall be packed in a container which offers sufficient protection from breakage and contamination of the coils. Each unit container shall contain at least one mosquito coil stand.

4.2 Mosquito Coil Stand

The mosquito coil stand shall be made of metallic material or other suitable non-inflammable material which can hold the burning coil horizontally till the total length is burnt.

4.3 The general packing requirements as specified in IS 8190 (Part 3) : 1979 shall be followed in addition to 4.1 and 4.2.

5 MARKING

Each container shall bear legibly and indelibly the following information in addition to any other information as is required under the *Insecticides Act, 1968* and Rules:

- a) Name of the material;
- b) Indication of the source of manufacture;
- c) Batch number;
- d) Date of manufacture and date of expiry;
- e) Total number of coils;
- f) Net mass of contents; and
- g) Allethrin content, percent (*m/m*).

6 SAMPLING

Representative samples of the material shall be drawn in accordance with IS 10627 : 1983.

7 TESTS

7.1 Tests shall be carried out by the appropriate methods referred to in 3.2 to 3.7.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070 : 1977) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

(*Clause 3.4.2*)

DETERMINATION OF RATE OF BURNING

A-1 PROCEDURE

Hold a piece of coil having a minimum length of 10 cm horizontally and freely and mark at 2 places within a distance of 2 cm from each other with indelible ink or any suitable material and within an interval of 1 cm. Ignite the coil and as soon as the burning point reaches the

initial marking of the first 2 cm width, start the stop-watch. Stop the stop-watch immediately when the final marking of the first 2 cm width is touched by burning and note the time of burning. In the same manner burn the second 2 cm width and note the time of burning. The average burning time taken per cm shall then be calculated.

ANNEX B

(*Clause 3.5*)

DETERMINATION OF STRENGTH

B-1 APPARATUS

B-1.1 **Spring Balance** — $0-200 \pm 5$ g tensile strength, accurately calibrated.

B-2 SELECTION OF COIL

Select a coil randomly from a box. Discard single coils that are broken or cracked due to careless separation in the selection process. Subject the single coil for the strength test.

B-3 PROCEDURE

B-3.1 Hold the head/eye (the portion of coil

with the hole for fixing on the stand) with the thumb and forefinger.

B-3.2 Place the hook of spring scale about 2 cm from the tip of a coil.

B-3.3 Hold the head of the coil firmly with the coil laying horizontally.

B-3.4 Gently and gradually pull the spring balance upwards until the breaking point of mosquito coil. The point at which the mosquito coil breaks shall be the breaking strength of the coil to the nearest ± 5 g.

ANNEX C

(Clause 3.6)

DETERMINATION OF SEPARABILITY OF JOINT COILS**C-1 PROCEDURE**

Hold both heads/eyes of the coils with the thumb and forefinger using both the hands.

Gently push the heads/eyes in the opposite direction and pull them apart gently to displace into single coils.

ANNEX D

(Clause 3.7)

DETERMINATION OF ALLETHRIN CONTENT**D-1 PRINCIPLE**

Allethrin is extracted with a mixture of toluene and formic acid from the coil and then gas chromatographically estimated using a flame ionization detector (FID).

D-2 APPARATUS

D-2.1 Centrifuge with 50-ml Tubes

D-2.2 Mechanical Shaker

D-2.3 Micro-Litre Syringe — 5 – 10 μ l capacity.

D-3 REAGENTS

D-3.1 Toluene

D-3.2 Formic Acid — 99 percent (v/v).

D-3.3 Sodium Sulphate — anhydrous.

D-3.4 Internal Standard — dibutyl phthalate, analytical reagent grade.

D-3.5 Activated Charcoal

D-4 PROCEDURE**D-4.1 Extraction**

Accurately weigh 10 g finely powdered mosquito coil sample in a 250-ml Erlenmeyer flask fitted

with a glass stopper and add 44 ml toluene and 5 ml formic acid. Stopper the flask and shake the contents on a mechanical shaker for 30 minutes. Add 15-20 g anhydrous sodium sulphate and 2-3 g activated charcoal and continue shaking for another 10 minutes. Transfer the contents to a 50-ml centrifuge tube and centrifuge at 2 500 rotations per minute for 10 minutes.

D-4.2 Preparation of Internal Standard Solution

Weigh accurately 1.0 g dibutyl phthalate in a 100-ml volumetric flask and make up the volume to mark with toluene. This will give a solution containing 10 mg/ml of dibutyl phthalate.

D-4.3 Preparation of Sample Solution

Take 9 ml supernatant solution (D-4.1) into a 10-ml volumetric flask, add 1 ml of internal standard solution and mix the contents thoroughly.

D-4.4 Estimation

Estimate allethrin content of the solution (D-4.3) by the method described in Annex A of IS 13146 : 1991.

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